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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,366	07/26/2001	Man Soo Choi	YPLEE7.001AP	1934

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EXAMINER	
HOFFMANN, JOHN M	

ART UNIT	PAPER NUMBER
1731	

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/890,366	CHOI ET AL.	
	Examiner	Art Unit	
	John Hoffmann	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4 and 5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9 April 2004 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1,4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim1: line 5: it is unclear what is meant by the flame being "formed in a burner". The present drawings show the flame to be external to the burner. One of ordinary skill would be confused as to what is meant by "in a burner". Line 8, it is unclear if this refers back to the aggregates of line 6, or if it can be other aggregates. Lines 9-10 refers to "the aggregates" it is unclear if it is referring back to the aggregates of line 6, or those of line 8.

The term "non-agglomerate" is indefinite as to its meaning. The term is not located in the specification. One would think that it would mean that it refers to a solid mass, that is devoid of any signs of agglomeration. However, as per page 13, lines 9-10 indicates that collision still occur. This might mean that although one former cluster of particles has been de-agglomeratized in to a single particle, it could combine with other particles to create an agglomeration of non-agglomerates. Examiner cannot tell if such an agglomeration would read on the present claims.

It is unclear what is meant by "non-agglomerate and smaller particles". Does it mean that there are some non-agglomerates, and some other particles (which aren't non-agglomerates) that are smaller than agglomerates? There is no discussion in the specification about this.

In the last three lines of cliam 1: there is confusing/missing antecedent basis for: "the synthesis", "non-agglomerate and smaller nanoparticles". Also the two uses of "smaller" are unclear as to what they are smaller than.

Claim 4: there is confusing antecedent basis for "nanoparticles". It is unclear if they are the particles of claim 1 or not. For claim 5: it is unclear which nanoparticles of claim 1 it refers back to.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 4-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support for the newly added limitations. There is no support for the nanoparticles being "non-agglomerate" . First of all, there appears to be no explicit support for this limitation. Also, examiner could not find any implicit support. On the contrary, page13, lines 9-10 states that the formation of aggregates is suppressed – that means that aggregate creation is still present. This suggests the particles are still agglomerating. There is nothing that indicates they are ever non-agglomerates. Further, see page 15, line 2 which indicates that other small particles are adhered to the larger particles. Thus it seems that even though the particles sinter to form spheres, new smaller particles agglomerate onto the spherical particles.

Further, there is no support for "non-agglomerate and smaller" nanoparticles.

Claim 4: there is no support for the phase transformation of claim 4. Although other phase transformations are disclosed, such is directed to melting of the particles (page 8, line12 and page 17, lines 9-30) not sintering as claim 1 requires. Clearly, if the particles are melted, they aren't sintered. Examiner could find no basis for sintering of the TiO2 particles, or with any other sort of material which undergoes a phase transformation

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Huber DE 3206178.

Huber does substantially the same thing that Applicant does, therefore, one would expect to get the same results.

As to claim 4: As indicicated above, the lack of proper antecedent basis, makes it impossible to understand the metes and bounds of the claim. It is deemed that the broadest reasonable interpretation of the claim is: "if the there is a crystalline phase of said nanoparticles, then said phase is transformed into another crystalline phase". Presently, Huber has no crystalline phase, therefore the "if" condition is not met, therefore there is no need for a transformation.

Response to Arguments

Applicant's arguments filed 9 April 2004 have been fully considered but they are not persuasive.

The request for a telephone interview is granted. Applicant may phone the number below to schedule the interview.

It is argued that Huber does not control the size, shape, phase and concentration of the particles. There is no evidence to support this assertion, Huber's method is substantially the same as Applicant's figure 6c. Since Huber uses laser like in substantially the same manner as Applicant, one would expect the same sort of control.

It is argued that the Huber's laser role and location are different. Applicant's drawings show laser angles from 0 to 90 degrees. The angle of the laser appears to be irrelevant to the effect generated. The role is immaterial: In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). It does not matter whether the intention/role is any different.

It is further argued that "the laser beam is irradiated onto aggregates existing in a flame (not on the target)". The claims are comprising in nature, and is open to having the laser impinge on the target as well as the flame borne particles. Moreover, Applicants laser of figure 6c would also impinge on the target. It is clear that at least some of the particles are hit by the laser

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John Hoffmann 4-26-04
Primary Examiner
Art Unit 1731

jmh